Pain:

Considering Complementary Approaches

National Center for Complementary and Integrative Health

U.S. Department of Health & Human Services — National Institutes of Health

What's in This eBook

This eBook is your guide to complementary health approaches for pain. It comes from the National Center for Complementary and Integrative Health (NCCIH), which is part of the Federal Government's National Institutes of Health (NIH).

Researchers are looking at the role of complementary health approaches in managing pain, and they're learning new things all the time. They're finding out that some complementary approaches may be helpful, but others may not be. They're also learning whether these approaches are safe.

This eBook covers the following topics:

Chapter 1: About Pain and Complementary Health Approaches gives you some basic facts about pain and about complementary health approaches.

Chapter 2: Safety of Complementary Health Approaches explains what you should consider to make sure that you're safe when you use complementary approaches.

Chapters 3 through 11 discuss specific complementary approaches that people may use to help manage pain. Each chapter briefly explains the approach and summarizes the scientific information on whether it's safe and helpful. You may want to read:

— Chapter 3: Acupuncture

— Chapter 4: Massage Therapy

— Chapter 5: Meditation and Mindfulness

— Chapter 6: Music

— Chapter 7: Relaxation Techniques

— Chapter 8: Spinal Manipulation

— Chapter 9: Tai Chi and Qigong

— Chapter 10: Yoga

— Chapter 11: Dietary Supplements and Other Nutritional Approaches

Chapter 12: Other Complementary Health Approaches briefly discusses a few complementary approaches that haven't been studied as extensively as the ones covered in earlier chapters.

Chapters 13 and 14 discuss topics that you might want to think about if you're considering using a complementary health approach for pain. You may want to read:

— Chapter 13: Be an Informed Consumer

— Chapter 14: Research on Complementary Approaches for Pain

The eBook ends with Chapter 15: Frequently Asked Questions, which reviews the most important information from earlier chapters and gives you links to resources where you can find out more.

Chapter 1 About Pain and Complementary Health Approaches

Pain is a common health problem. Sometimes, it only lasts for a short time. This is called *acute pain*. Other times, it persists. This is called *chronic pain*. The 2016 National Health Interview Survey showed that about 20 percent of U.S. adults had chronic pain (defined for this survey as pain on most days or every day in the past 6 months). That's 50 million people.

Complementary Health Approaches: A group of diverse medical and health care systems, practices, and products whose origins come from outside of mainstream medicine. These approaches can be classified by the way in which the therapy is taken in or delivered, which may be nutritional, psychological, physical, or a combination (such as psychological and physical).

Chronic pain is more common among women than men, and it becomes more common as people grow older. One reason why older people are more likely to have chronic pain is that health problems that can cause pain, such as arthritis, become more common with advancing age.

Not all people with chronic pain have a health problem that has been diagnosed by a doctor, but among those who do, the most frequent conditions by far are low-back pain and osteoarthritis. Other common conditions include rheumatoid arthritis, migraine, carpal tunnel syndrome, and fibromyalgia.

Chronic pain may result from a disease or injury, medical treatment (such as surgery), inflammation, or a problem in the nervous system, or the cause may be unknown.

Pain can affect quality of life and productivity, and people who have pain may also have difficulty moving around, trouble sleeping, anxiety, depression, and other problems.

What Are Complementary Health Approaches?

This eBook discusses a variety of complementary health approaches that have been studied for pain. But what exactly are complementary approaches, and how do they differ from standard medical care?

Complementary health approaches are a group of diverse medical and health care systems, practices, and products whose origins come from outside of mainstream medicine. They include such products and practices as herbal and other dietary supplements, meditation, spinal manipulation, and acupuncture.

Complementary approaches can be classified by how the therapy is taken in or delivered and may be:

- **Psychological (such as mindfulness and hypnosis)**
- **Physical (such as massage therapy and spinal manipulation)**
- **Nutritional (such as dietary supplements)**
- **A combination; for example, yoga combines poses (physical) and meditation (psychological)**

Integrative Health Care

Integrative health care brings conventional and complementary approaches together in a coordinated way. It also emphasizes multicomponent interventions and aims for well-coordinated care among different providers and institutions.

For example, cancer treatment centers that have integrative health care programs may offer services like acupuncture and meditation to help manage symptoms and side effects for patients who are receiving conventional cancer treatments such as chemotherapy.

To Find Out More

- To learn more about pain and pain research, visit the Pain page (https://nccih.nih.gov/health/pain) on the NCCIH website and the National Institute of Neurological Disorders and Stroke's Chronic Pain webpage (https://www.ninds.nih.gov/health-information/disorders/chronic-pain).
- To learn more about complementary health approaches, read the *Complementary, Alternative, or Integrative Health: What's In a Name?* fact sheet on the NCCIH website (https://www.nccih.nih.gov/health/complementary-alternative-or-integrative-health-whats-in-a-name).
- To learn more about complementary approaches for specific health conditions, visit Health Topics A–Z on the NCCIH website (https://www.nccih.nih.gov/health/atoz).

Chapter 2 Safety of Complementary Health Approaches

Are complementary health approaches safe? This is an important question, and it doesn't have a simple answer. Safety depends on the specific approach, and each complementary product or practice should be considered on its own.

— **Complementary health approaches that are safe for healthy people may not be safe for people with some medical conditions.** This may be because of the condition itself or because of the treatment the person is receiving. If you have pain, you have at least one health problem. You might have others as well. So, it's important to find out whether a complementary approach is safe for you.

— **Always talk with your doctor or other health care provider before starting a new complementary approach.** If the approach involves working with a practitioner or taking classes with an instructor, discuss your health conditions with that person, too. Your health care provider and the complementary health practitioner can help you decide whether the approach is appropriate for you.

Psychological and/or Physical Approaches

As you will see in the following chapters, psychological and/or physical complementary health approaches—like acupuncture, massage therapy, meditation and mindfulness, music-based interventions, relaxation techniques, spinal manipulation, tai chi, qigong, and yoga—generally have good safety records when done properly by a trained professional or taught by a well-qualified instructor. Serious side effects are rare.

However, just because a practice is safe for most people doesn't necessarily mean it's safe for you. Your medical conditions, the medicines you take, or other special circumstances (such as pregnancy) may affect the safety of a complementary health approach. That's why it's so important to talk with your health care provider and with the complementary health practitioner or instructor.

Dietary Supplements and Other Nutritional Approaches

Dietary Supplements: Federal law defines dietary supplements as products that you take by mouth; are made to supplement the diet; have one or more dietary ingredients, including vitamins, minerals, herbs or other botanicals, amino acids, enzymes, tissues from organs or glands, or extracts of these; and are labeled as being dietary supplements.

Although many dietary supplements come from natural sources, "natural" doesn't always mean "safe." Dietary supplements can have adverse side effects. The side effects may vary depending on the supplement itself, the dose, or if many different supplements are taken. Depending on the supplement, there may be risks if it is taken instead of prescribed medicines. Supplements can also interact with some medicines in harmful ways. (See *Using Dietary Supplements Wisely* [https://www.nccih.nih.gov/health/using-dietary-supplements-wisely] for more details about the health effects of various dietary supplements.)

There are many unknowns about the safety of dietary supplements. For example, there's little safety data on most herbal supplements, and it's hard to test the safety of these products because they may contain hundreds of substances.

It's important to tell all your health care providers about all dietary supplements and other natural products you take. The health history form you filled out on your first visit to the provider's office probably included questions about dietary supplements, but you may have started or stopped using some supplements since then. Make sure to keep your health care providers up to date about your supplement use.

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Using Complementary Approaches Appropriately

Another important aspect of safety involves how you use a complementary approach. Even if the approach itself is safe, using it inappropriately could be harmful.

- **Never use a complementary approach as a reason to delay seeing your doctor or other health care provider about pain or any other health problem.** You might have a medical condition—such as an infection—that needs to be treated promptly. If you wait to see your health care provider while trying complementary approaches, your condition could get worse.
- **If you're thinking about stopping (or not starting) conventional care for your health problem, discuss it with your health care provider.** In some instances, going without conventional care can lead to serious problems. Rheumatoid arthritis is an example. The conventional medicines used to treat this disease may slow or stop joint damage; they don't just relieve symptoms. Going without conventional care could lead to permanent joint damage.

To Find Out More

- You can learn more about the safety of specific complementary health approaches in the chapters in this eBook that discuss those approaches.
- For more detailed information, visit NCCIH's webpage on Safe Use of Complementary Health Products and Practices (https://www.nccih.nih.gov/health/safety).

Chapter 3 **Acupuncture**

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Acupuncture is a technique in which practitioners insert fine needles into the skin to treat health problems. The needles may be manipulated manually or stimulated with small electrical currents (electroacupuncture). Acupuncture originated from traditional Chinese medicine and has gained popularity worldwide since the 1970s.

The use of acupuncture has increased in the United States in recent years. In 2002, 1.0 percent of U.S. adults used acupuncture; in 2022, 2.2 percent used it. Among those who used acupuncture in 2022, 72.8 percent reported using it to manage pain.

Acupuncture: A technique in which practitioners insert fine needles into the skin to treat health problems. Acupuncture originated from traditional Chinese medicine.

Is Acupuncture Safe?

Serious complications from acupuncture are uncommon. However, acupuncture may cause serious harm, such as infections or injuries to body organs, if it's not done properly.

Does Acupuncture Help To Relieve Pain?

Research has shown that acupuncture may be helpful for several pain conditions, including back and neck pain, knee pain associated with osteoarthritis, and pain after surgery. It may also help relieve joint pain associated with the use of aromatase inhibitors, a group of drugs used in people with breast cancer.

How acupuncture works is not fully understood. However, there's evidence that acupuncture may have effects on the nervous system, effects on other body tissues, and nonspecific effects due to factors other than insertion of the needles, such as the patient's belief in the treatment and the relationship between the practitioner and patient.

Research has been done on acupuncture for a variety of pain conditions. Here's what the studies have shown:

— **Back and Neck Pain**

  – Studies have shown that acupuncture is more effective than sham (fake) acupuncture or no treatment for back or neck pain. The pain-relieving effect of acupuncture is comparable to that of nonsteroidal anti-inflammatory drugs (ibuprofen and similar drugs).

  – When health care providers need to make decisions about the best ways to treat their patients, they often rely on clinical practice guidelines—science-based recommendations for patient care. A clinical practice guideline issued by the American College of Physicians, a national organization of doctors who specialize in internal medicine, recommends acupuncture as one of several nondrug approaches physicians should consider for people with low-back pain.

— **Osteoarthritis**

  – Acupuncture may relieve pain in people with knee pain due to osteoarthritis. Studies have shown it is more effective than either sham acupuncture or no treatment.

  – A 2019 clinical practice guideline from the American College of Rheumatology and the Arthritis Foundation conditionally recommends acupuncture for osteoarthritis of the knee, hip, or hand.

— **Headaches.** There's moderate-quality evidence that acupuncture may reduce the frequency of migraines and moderate-to-low quality evidence that it may reduce the frequency of tension headaches.

— **Myofascial Pain Syndrome**. Myofascial pain syndrome involves pain derived from muscles and their related connective tissue. It involves tender nodules called "trigger points." A small number of studies show that acupuncture applied to trigger points is helpful for this type of pain, but acupuncture applied to traditional acupuncture points is not.

— **Sciatica.** Sciatica involves pain, weakness, numbness, or tingling in the leg, usually on one side of the body, caused by damage to or pressure on the sciatic nerve—a nerve that starts in the lower back and runs down the back of each leg. There's some evidence that acupuncture may be helpful for sciatica pain, but the quality of the research is not good enough to allow definite conclusions to be reached.

— **Pain After Surgery.** Studies of patients with pain after surgery found that those who were treated with acupuncture had less pain and used less opioid pain medicine after their operations.

— **Joint Pain Associated With Cancer Treatment.** Drugs called aromatase inhibitors are helpful in treating hormone-sensitive breast cancer, but they can cause joint pain and stiffness. A study of women with early-stage breast cancer who were taking these drugs found that those who received acupuncture treatment reported less joint pain than those who received sham acupuncture or no acupuncture.

— **Chronic Prostatitis/Chronic Pelvic Pain Syndrome.** Chronic prostatitis/chronic pelvic pain syndrome is a condition in men that involves inflammation in or around the prostate gland; its cause is uncertain. A small amount of research suggests that acupuncture may reduce prostatitis symptoms, but there isn't enough evidence to allow definite conclusions to be reached.

— **Irritable Bowel Syndrome.** The evidence suggests that acupuncture is no more effective than sham acupuncture for irritable bowel syndrome symptoms, but it may be helpful when used in addition to other forms of treatment.

Fibromyalgia: A common disorder that involves widespread pain, tenderness, fatigue, and other symptoms.

— **Fibromyalgia.** Research suggests that acupuncture is better than sham acupuncture for relieving pain associated with fibromyalgia, but the evidence is only of low-to-moderate quality.

To Find Out More

— For a more detailed discussion of what the science says about acupuncture for pain, read NCCIH's fact sheet *Acupuncture: What You Need To Know* (https://www.nccih.nih.gov/health/acupuncture-what-you-need-to-know).

Chapter 4 **Massage Therapy**

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Massage has been practiced in most cultures, both Eastern and Western, throughout human history. It was one of the earliest tools that people used to try to relieve pain. There are many massage techniques, but, in general, they all involve manipulating the soft tissues of the body with the goal of helping to manage a health condition or enhance wellness.

The use of massage therapy has more than doubled in recent years. In 2002, 4.8 percent of U.S. adults used massage therapy; in 2022, that number had grown to 10.9 percent. Among those who used massage therapy in 2022, more than half (53.4 percent) reported using it for pain.

Massage Therapy: A practice that encompasses many different techniques in which therapists press, rub, and otherwise manipulate the muscles and other soft tissues of the body. They most often use their hands and fingers, but may use their forearms, elbows, or feet.

Is Massage Therapy Safe?

The risk of harm from massage therapy appears to be low. However, there have been rare reports of serious injuries. Some of the reported cases involved vigorous types of massage, such as deep tissue massage, or patients who might be at increased risk of injury, such as elderly people.

Your massage therapist may have to take certain precautions if you have special needs. For example:

— If you take an anticoagulant (blood-thinning) drug such as warfarin, vigorous massage may not be safe for you.

— If you have a weakened area on your body, such as a wound that's healing, you shouldn't be massaged in that area.

— If you have cancer, the massage therapist may need to take special precautions to ensure that massage is safe for you.

You can help make sure that massage therapy is safe for you by talking with your health care providers to find out if any special precautions are needed, choosing a well-qualified massage therapist, and explaining your medical conditions and treatments to the massage therapist.

You can find out about the licensing and certification of massage therapists in NCCIH's massage therapy fact sheet (https://www.nccih.nih.gov/health/massage-therapy-what-you-need-to-know).

Does Massage Therapy Help To Relieve Pain?

Research suggests that massage therapy may help relieve several kinds of pain, but in most instances, the evidence isn't strong. If massage therapy does help, the effects may last for only a short time.

— **Low-Back Pain.** Several evaluations of massage for low-back pain have found only weak evidence that it may be helpful. It's uncertain whether some types of massage are more effective than others.

— **Neck and Shoulder Pain.** Massage therapy may be helpful for neck and shoulder pain, but it seems to provide only short-term relief.

— **Cancer Pain.** Massage therapy can be part of supportive care for cancer patients who want to try it, but the evidence that it can relieve pain and anxiety is not strong.

— **Arthritis.** Some evidence suggests that massage therapy may be helpful for arthritis pain. The evidence is stronger for osteoarthritis than rheumatoid arthritis.

— **Headaches.** Only a small number of research studies have looked at whether massage therapy is helpful for tension headaches or migraines, and their results have been inconsistent.

— **Fibromyalgia.** Massage therapy may be helpful for some fibromyalgia symptoms, including pain, if it's continued for more than a month.

To Find Out More

For a more detailed discussion of what the science says about massage therapy for pain, read NCCIH's fact sheet *Massage Therapy: What You Need To Know* (https://www.nccih.nih.gov/health/massage-therapy-what-you-need-to-know).

Chapter 5 Meditation and Mindfulness

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Meditation: The term "meditation" refers to a variety of practices that focus on mind and body integration and are used to calm the mind and enhance overall well-being.

Meditation has a history that goes back thousands of years. Many meditation techniques began in Eastern traditions.

Some types of meditation involve focusing on a particular activity or sensation, such as breathing, listening to a sound, looking at an image, or saying a mantra (a repeated word or phrase). Other forms of meditation include mindfulness, which involves focusing on the present moment without making judgments. You may have heard of mindfulness-based stress reduction; it's a program that teaches mindful meditation and also includes strategies to help people apply what they have learned to stressful experiences.

People use meditation and mindfulness for many reasons. This chapter discusses only one of their many uses: helping to manage pain. There's a link to more comprehensive information on meditation and mindfulness, including information on their other health-related uses, at the end of the chapter.

The percentage of U.S. adults who use meditation grew from 7.5 percent in 2002 to 17.3 percent in 2022, according to a national survey. Among those who used meditation in 2022, 18.3 percent used it for managing pain.

Are Meditation and Mindfulness Safe?

Meditation and mindfulness practices usually are considered to have few risks. However, few studies have examined these practices for potential harms, so it isn't possible to make definite statements about safety.

Do Meditation and Mindfulness Help To Relieve Pain?

Research on the effects of mindfulness or meditation on acute and chronic pain has had mixed results.

— **Acute Pain.** In studies on acute pain, mindfulness-based therapies didn't seem to reduce pain severity, but there was some evidence that they improved people's tolerance for pain.

— **Chronic Pain.** Studies on chronic pain have found that mindfulness-based interventions and cognitive behavioral therapy (the usual psychological intervention for chronic pain), are both helpful in decreasing pain intensity, and both worked about equally well.

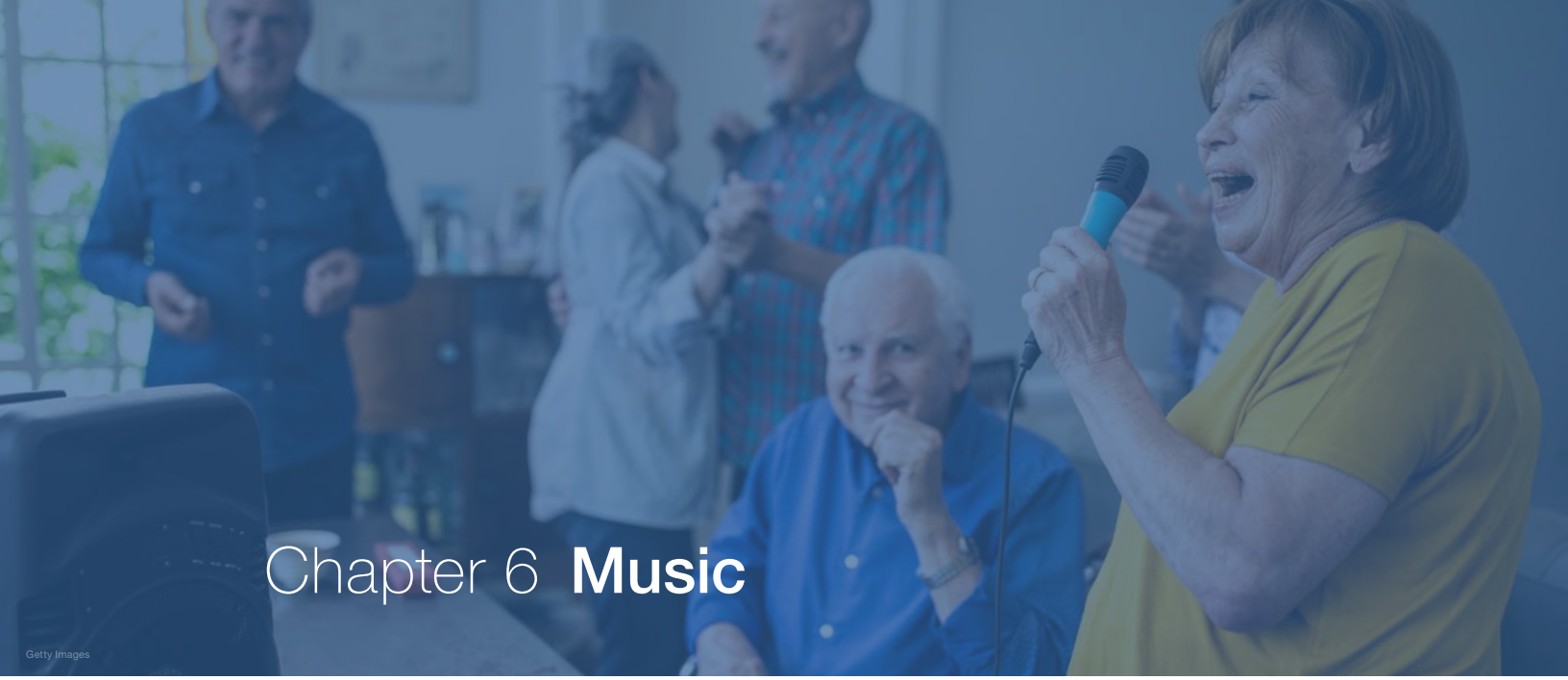
— **Low-Back Pain**. There's evidence that mindfulness-based stress reduction has short-term benefits for low-back pain.

— **Fibromyalgia.** Mindfulness-based stress reduction has not been shown to improve fibromyalgia pain.

— **Headaches.** A small amount of preliminary research on mindfulness-based approaches for headaches has not reported any reductions in headache frequency, length, or intensity.

To Find Out More

To learn more about what the science says about meditation and mindfulness for pain, read NCCIH's fact sheet *Meditation and Mindfulness: What You Need To Know* (https://www.nccih.nih.gov/health/meditation-and-mindfulness-what-you-need-to-know).



Chapter 6 **Music**

Increasing evidence suggests that listening to or making music affects the brain in ways that may help promote health and manage disease symptoms. Some of the research on music-based interventions has looked at effects on pain.

Music-Based Interventions: Music-based interventions may involve listening to music, singing, playing instruments, moving to music, or other activities. Preliminary evidence suggests that music-based interventions may be helpful for symptoms of a variety of health conditions.

Are Music-Based Interventions Safe?

In general, music-based interventions have been safe when used in research studies. However, that doesn't mean that music is always harmless. Listening to music at too high a volume can damage your hearing. There are also other possible risks. For example, because music can be associated with memories or strong emotions, some people may be distressed by hearing specific pieces or types of music. Extensive playing of musical instruments can lead to pain and injury. Music-based interventions that involve exercise or other types of movement could also lead to injury if appropriate safety precautions are not taken.

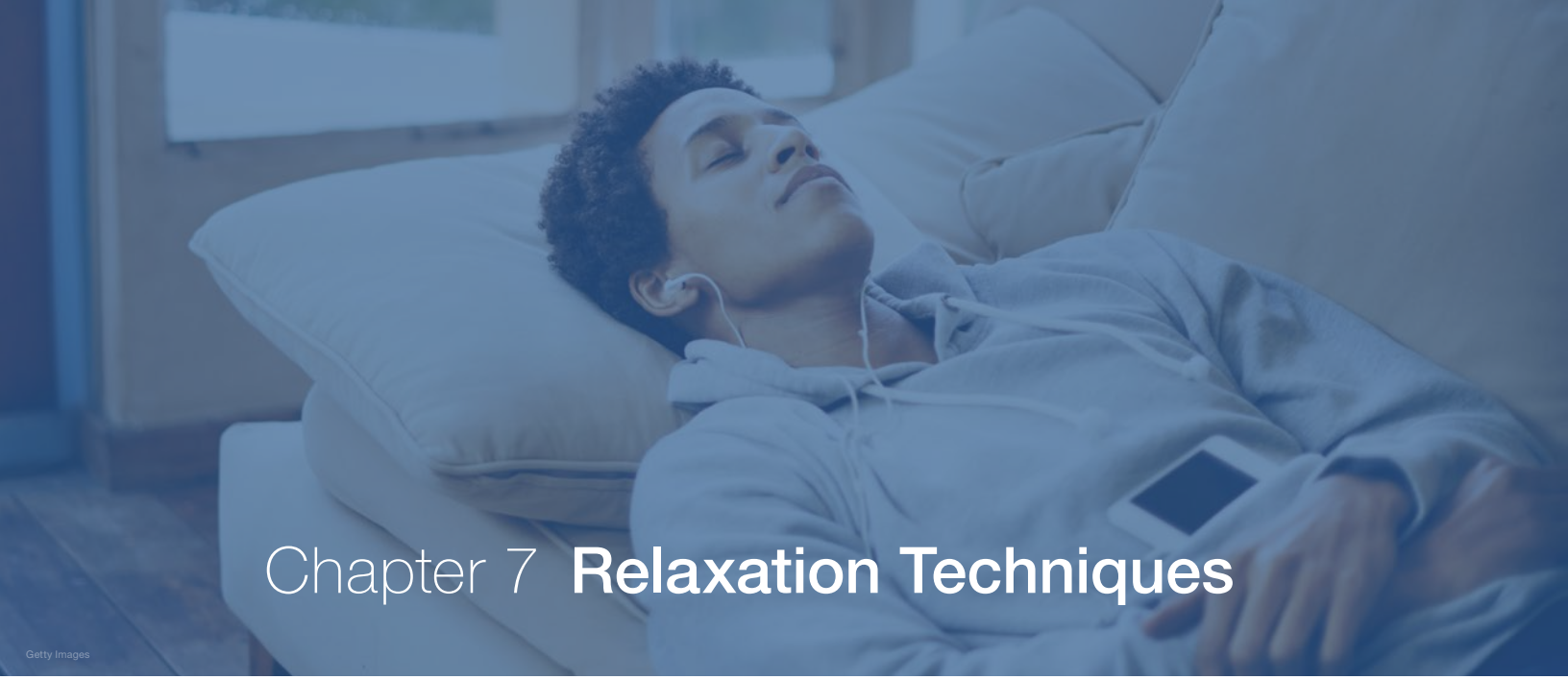
Do Music-Based Interventions Help To Relieve Pain?

— About 100 research studies have tested music-based interventions to see whether they can help relieve pain associated with a variety of health problems and medical procedures. For example, studies have tested whether letting people listen to music on headphones during a medical procedure helps to make it less painful. Overall, the evidence suggests that music-based interventions may have beneficial effects on both pain intensity and emotional distress from pain and may lead to decreased use of pain-relieving medications.

— Although much of the research on music and pain has focused on short-term effects on acute pain, especially pain associated with medical procedures, there have also been studies on chronic pain associated with a variety of diseases, such as cancer, fibromyalgia, multiple sclerosis, or osteoarthritis. In general, music-based interventions reduced chronic pain and associated depressive symptoms, and people had greater pain relief when they chose the music themselves than when the researchers chose the music. Most of the music-based interventions that have been studied for chronic pain involved listening to recorded music.

To Find Out More

To learn more about what the science says about music-based interventions for pain, read NCCIH's fact sheet *Music and Health: What You Need To Know* (https://www.nccih.nih.gov/health/music-and-health-what-you-need-to-know).



Chapter 7 Relaxation Techniques

Relaxation techniques include progressive relaxation, guided imagery, biofeedback-assisted relaxation, and deep breathing exercises. The goal of these techniques is to produce the body's natural relaxation response, with slower breathing, lower blood pressure, and a feeling of calm and well-being.

This chapter only discusses the use of relaxation techniques for pain. There's a link to information on other uses of relaxation techniques at the end of the chapter.

In 2002 and 2022, a national survey collected data on the use of two relaxation techniques, guided imagery and progressive muscle relaxation. In 2002, 3.8 percent of U.S. adults reported using one or both of these techniques; in 2022, 6.4 percent reported using them. Of those who used guided imagery and/or progressive muscle relaxation in 2022, 24.0 percent said they used them for pain.

Relaxation Techniques:
Relaxation techniques are practices to help bring about the body's "relaxation response," which is characterized by slower breathing, lower blood pressure, and a reduced heart rate. The relaxation response is the opposite of the stress response.

Are Relaxation Techniques Safe?

Relaxation techniques are generally considered safe for healthy people. However, people occasionally report negative experiences such as increased anxiety, intrusive thoughts, or fear of losing control. There have been rare reports that certain relaxation techniques might cause or worsen symptoms in people with mental health conditions or a history of abuse or trauma.

Do Relaxation Techniques Help To Relieve Pain?

Research results suggest that adding relaxation techniques to treatment plans can help with some painful conditions.

— **Pain After Surgery.** Psychological interventions that include relaxation techniques may be helpful in reducing pain after surgery.

— **Headaches.** Some studies of relaxation techniques for migraines or tension headaches have shown improvements including a reduction in headache frequency in people who used the techniques. The evidence is strongest for relaxation techniques used in combination with cognitive behavioral therapy.

— **Low-Back Pain.** Progressive muscle relaxation and biofeedback are two of several nondrug approaches suggested as the first step in treating chronic low-back pain in treatment guidelines from the American College of Physicians. These techniques were recommended because there is evidence that both can lead to a moderate improvement in low-back pain. Progressive muscle relaxation may also lead to an improvement in back function.

— **Arthritis.** Guided imagery may be helpful for people with arthritis and other rheumatic diseases.

— **Fibromyalgia.** Studies of progressive muscle relaxation for fibromyalgia have found insufficient evidence to show whether it is helpful. No clear benefit has been found for biofeedback in people with fibromyalgia. Findings on guided imagery are conflicting.

To Find Out More

To learn more about what the science says about relaxation techniques, read NCCIH's fact sheet *Relaxation Techniques: What You Need To Know* (https://www.nccih.nih.gov/health/relaxation-techniques-what-you-need-to-know).

Chapter 8 Spinal Manipulation

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Spinal manipulation is a practice in which chiropractors or other health professionals use their hands or a device to apply a controlled force to a joint of the spine.

Spinal Manipulation:
Most spinal manipulations are done by chiropractors (chiropractic treatment often involves spinal manipulation), although other licensed professionals including osteopathic physicians and physical therapists also use this technique.

Is Spinal Manipulation Safe?

Temporary side effects often occur after spinal manipulation. They may include increased pain or discomfort, stiffness, or headaches. Most of these side effects go away within 24 hours.

Serious side effects, such as serious spinal or neurological problems or strokes involving arteries in the neck, have been reported. However, they are very rare, and there are no accurate estimates of how often they occur. The likelihood of a serious side effect may be greater in people who have underlying health problems that increase their risk of injury.

If you're considering spinal manipulation, discuss your health with the chiropractor or other practitioner who would perform the manipulation. Make sure to mention all health conditions you have and any medications you take.

National survey data show that 7.4 percent of U.S. adults used chiropractic care in 2002, and 11.0 percent used it in 2022. Among those who used chiropractic care in 2022, 85.7 percent used it for managing pain.

Does Spinal Manipulation Help To Relieve Pain?

— **Low-Back Pain.** Spinal manipulation may lead to small improvements in both acute and chronic low-back pain. The American College of Physicians, a national organization of doctors who specialize in internal medicine, has recommended spinal manipulation as one of several nondrug treatments that patients with acute or chronic low-back pain may want to consider.

— **Neck Pain.** Spinal manipulation can be helpful for acute or chronic neck pain. For acute neck pain, a small amount of evidence shows that spinal manipulation may reduce pain intensity. For chronic neck pain, spinal manipulation or a related technique called spinal mobilization, which involves moving a joint within its natural range of motion, may reduce pain.

— **Headaches.** Spinal manipulation may reduce the frequency and intensity of cervicogenic headaches (head pain that originates from a problem in the neck). Preliminary evidence suggests it may also be helpful for migraines.

— **Sciatica.** Sciatica is pain associated with the sciatic nerve, which controls muscles in the back of the knee and the lower leg. Limited research suggests spinal manipulation may be helpful for sciatica.

To Find Out More

— Read NCCIH's fact sheet *Spinal Manipulation: What You Need To Know* (https://www.nccih.nih.gov/health/spinal-manipulation-what-you-need-to-know).

— To learn about the training, credentials, and licensing of complementary health practitioners who may perform spinal manipulation, read NCCIH's webpages on chiropractic (https://www.nccih.nih.gov/health/chiropractic-in-depth) and naturopathy (https://nccih.nih.gov/health/naturopathy).

Chapter 9 Tai Chi and Qigong

Tai chi and qigong are practices that originated in China. Qigong has both psychological and physical components and involves the regulation of the mind, breath, and the body's movements and posture. Tai chi originated as an ancient martial art. Tai chi is considered a form of qigong and involves a combination of physical postures, focused attention, and controlled breathing.

Are Tai Chi and Qigong Safe?

In general, yes. However, as with all complementary approaches, "safe" doesn't necessarily mean "safe for you." If you have any chronic health conditions, if you take medication, or if you are pregnant, talk with your health care provider about tai chi or qigong, and make sure that your tai chi or qigong instructor is familiar with your health situation.

Do Tai Chi and Qigong Help To Relieve Pain?

There has been only a small amount of research on qigong for pain, and the few studies that have been done have had conflicting results. More is known about tai chi.

— **Osteoarthritis.** In research studies, people who practiced tai chi experienced improvements in pain, stiffness, physical function (such as walking, standing, and getting into and out of a car), balance, and psychological health. Guidelines from the American College of Rheumatology and the Arthritis Foundation strongly recommend tai chi for the management of osteoarthritis.

— **Rheumatoid Arthritis.** It's uncertain whether tai chi is helpful for rheumatoid arthritis. Only a small amount of research has been done, and the quality of the research is very low.

— **Low-Back Pain.** Tai chi, either alone or in addition to physical therapy, may decrease the intensity of pain and improve everyday function (such as the ability to walk, climb stairs, carry groceries, and get dressed) in people with low-back pain. An American College of Physicians treatment guideline includes tai chi as an option for initial nondrug treatment of chronic low-back pain.

— **Fibromyalgia.** A small amount of research suggests that tai chi can help reduce pain and improve other symptoms in people with fibromyalgia.

To Find Out More

To learn more about what the science says about tai chi and qigong, read NCCIH's fact sheets *Tai Chi: What You Need To Know* (https://www.nccih.nih.gov/health/tai-chi-what-you-need-to-know) and *Qigong: What You Need To Know* (https://www.nccih.nih.gov/health/qigong-what-you-need-to-know).

Bryan Ewsichek

Chapter 10 **Yoga**

Yoga is an ancient and complex practice, rooted in Indian philosophy. It began as a spiritual practice and has also become popular as a way of promoting physical and mental well-being.

Although traditional yoga also includes other elements, yoga as practiced in the United States typically emphasizes physical postures, breathing techniques, and meditation.

About one in seven U.S. adults practiced yoga in the past 12 months, according to a 2017 national survey. Among children ages 4 to 17 years, it was about 1 in 12. The percentage of people who practiced yoga grew from 2007 to 2012 and again from 2012 to 2017.

The proportion of U.S. adults who practice yoga grew from 5.0 percent in 2002 to 15.8 percent in 2022. Of those who practiced yoga in 2022, 28.8 percent said that they used it for managing pain.

Yoga: There are many different yoga styles, ranging from gentle practices to physically demanding ones. Differences in the types of yoga used in research studies may affect study results. This makes it challenging to evaluate research on the health effects of yoga.

Is Yoga Safe?

Yoga is generally considered a safe form of physical activity for healthy people when performed properly, under the guidance of a qualified instructor. However, as with other forms of physical activity, injuries can occur. The most common injuries are sprains and strains, and the parts of the body most commonly injured are the knee or lower leg. Serious injuries are rare.

To reduce your chances of getting hurt while doing yoga:

— Practice yoga under the guidance of a qualified instructor. Practicing yoga by self-study without supervision has been associated with increased risks.

— If you're new to yoga, avoid advanced practices such as headstands, shoulder stands, the lotus position, and forceful breathing.

— Be aware that hot yoga has special risks related to overheating and dehydration.

Pregnant people, older adults, and people with health conditions should talk with their health care providers and the yoga instructor about their individual needs. They may need to avoid or modify some yoga poses and practices.

Does Yoga Help To Relieve Pain?

— **Low-Back Pain**

- Studies of yoga for low-back pain have shown yoga to be helpful in both the short term (1 to 6 months) and intermediate term (6 to 12 months). The effects of yoga are similar to those of other types of exercise.
- The American College of Physicians recommends using nondrug methods for the initial treatment of chronic low-back pain. Yoga is one of several suggested nondrug approaches.

— **Neck Pain.** Practicing yoga has been shown to reduce both the intensity of neck pain and disability related to neck pain.

— **Headaches.** A small amount of research suggests that practicing yoga may reduce headache frequency, headache duration, and pain intensity, mostly in people with tension headaches rather than migraines.

— **Knee Osteoarthritis**

- A limited amount of research suggests that yoga may be helpful for improving pain, function, and stiffness in people with osteoarthritis of the knee.
- A guideline from the American College of Rheumatology and the Arthritis Foundation conditionally recommends yoga for patients with knee osteoarthritis based on similarities to tai chi, which has been better studied and is strongly recommended by the same guideline.

To Find Out More

Read NCCIH's fact sheet *Yoga: What You Need To Know* (https://www.nccih.nih.gov/health/yoga-what-you-need-to-know).

Chapter 11 Dietary Supplements and Other Nutritional Approaches

Natural substances from plants and animals have been used for thousands of years for pain relief and are the sources of many well-known drugs.

Natural products used in complementary health include herbs (also known as botanicals), vitamins, minerals, probiotics, and other substances such as glucosamine and fish oil. Many of these products are sold as dietary supplements or as products for topical use, which you put on your skin.

This chapter summarizes the research on dietary supplements and other natural products for several pain conditions and discusses important issues to consider if you're thinking of using these products. It also takes a brief look at early-stage research on other natural substances, including cannabinoids and kratom.

Pain Conditions for Which Dietary Supplements and Other Natural Products Have Been Studied

— **Low-Back Pain.** Several types of herbal preparations have been tested for their ability to relieve low-back pain. The results are most promising for cayenne (capsicum) cream or plasters, used topically. There's also a small amount of evidence that Brazilian arnica and comfrey root extract, used topically, and devil's claw and white willow bark, taken orally (by mouth), may be helpful.

Osteoarthritis: A common type of arthritis caused by the breakdown of cartilage, which is the connective tissue that cushions the ends of bones within the joint. Osteoarthritis is characterized by pain, joint damage, and limited motion.

— Osteoarthritis

- In their guideline for the management of osteoarthritis of the hand, hip, and knee, the American College of Rheumatology and the Arthritis Foundation strongly recommend against the use of glucosamine for people with arthritis in any of these three body sites. Their reason is that studies with the lowest risk of bias have not shown glucosamine to work better than a placebo (an inactive substance). The guideline also recommends against the use of chondroitin or combination glucosamine/chondroitin products for osteoarthritis of the hip or knee. It conditionally (weakly) recommends chondroitin for hand osteoarthritis, however, based on a single study that showed a pain-relieving effect and chondroitin's apparent safety.
- The guideline conditionally recommends against the use of fish oil because only one study has been done on its use for osteoarthritis, and that study did not show a higher dose to be more beneficial than a lower one.
- The guideline conditionally recommends against the use of vitamin D because the overall evidence does not show a benefit.

Rheumatoid Arthritis (RA): A health condition that causes pain, swelling, stiffness, and loss of function in the joints. Conventional medical treatments are highly effective for RA; however, researchers are also studying complementary health approaches as possible additions to RA treatments.

— Rheumatoid Arthritis

- Omega-3 fatty acids of the types found in fish oil may have beneficial effects on rheumatoid arthritis when used in addition to conventional drug therapy.
- No other dietary supplement has shown clear benefits for rheumatoid arthritis, but there is preliminary evidence for a few, particularly gamma-linolenic acid (contained in evening primrose oil, borage seed oil, and black current seed oil) and the herb thunder god vine. However, serious safety concerns have been raised about thunder god vine.

— Migraine

- There is some evidence that coenzyme Q10, feverfew, magnesium, and the B vitamin riboflavin might be helpful for reducing the frequency of migraines. However, for all these supplements, the amount of evidence is small.
- Butterbur appears to reduce the frequency of migraines. However, serious concerns have been raised about possible liver toxicity from this herb.
- The results of a recent study showed that diets high in omega-3 fatty acids may be helpful for migraines. Omega-3 supplements have not been shown to make migraines less frequent or severe, but a small amount of evidence suggests that they might reduce the duration of migraine attacks.

Irritable Bowel Syndrome (IBS): A chronic disorder that interferes with the normal functions of the colon. IBS is characterized by symptoms such as abdominal pain, cramping, bloating, constipation, and diarrhea.

— Irritable Bowel Syndrome

- Probiotics may be helpful for symptoms of irritable bowel syndrome (IBS), but different strains of probiotics may have different effects. The 2021 American College of Gastroenterology (ACG) guideline for IBS treatment suggests that probiotics should not be used for the treatment of IBS symptoms because the current evidence doesn't clearly show which probiotics might be helpful.
- Studies on peppermint oil have suggested that it may be helpful for overall symptoms and abdominal pain in people with IBS, and the ACG guideline suggests that it can be used, although the evidence is not strong.

Using Dietary Supplements Wisely

As mentioned earlier, natural products used in complementary health are often sold as dietary supplements. The U.S. Food and Drug Administration (FDA) regulates dietary supplements, but the regulations are different than those for prescription or over-the-counter drugs.

The FDA approves drugs before they go on the market. However, the FDA doesn't have the authority to approve dietary supplements or their labeling before they are sold. The FDA's role in regulating dietary supplements primarily begins after products are on the market. If a product is found to be unsafe or not in compliance with the law, the FDA can work with the company to bring the product into compliance or remove it from the market.

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"Natural" Doesn't Always Mean "Safe"

Although many dietary supplements come from natural sources, "natural" doesn't always mean "safe." Supplements may contain ingredients that have strong effects in your body. A product's safety depends on many things, such as the chemicals in it, how it works in the body, how it's prepared, and the amount you take.

Problems With Dietary Supplement Ingredients and Marketing

There have been instances where products labeled as dietary supplements have been found to contain hidden substances that could be harmful, such as prescription drug ingredients. This has occurred with products marketed for arthritis or pain, as well as those promoted for weight loss, sleep, sexual enhancement, or bodybuilding.

Products promoted with unproven claims that they can cure serious diseases, such as Alzheimer's disease or diabetes, have sometimes been sold as dietary supplements. However, dietary supplements are not intended to treat, diagnose, prevent, or cure diseases. Claims of these types can only legitimately be made for drugs. If you are considering using a dietary supplement that's promoted as a treatment for a disease, discuss it with your health care provider.

"Safe" May Not Mean "Safe for You"

Even if the dietary supplement you're planning to take is generally considered safe, that doesn't necessarily mean it's safe for you.

- Some supplements may be unsafe for people who have specific medical conditions. For example, it's not safe for people with hemochromatosis (a hereditary disease in which too much iron builds up in your body) to take iron supplements.
- **Some supplements may cause problems if you have surgery.** They may increase the risk of bleeding or affect your response to anesthesia.
- **Some dietary supplements interact with medicines.** For example, the herbal supplement St. John's wort interacts with many medicines, making them less effective, and supplements containing vitamin K may reduce the ability of the blood thinner warfarin to prevent blood from clotting.
- **Most dietary supplements have not been tested in people who are pregnant or breastfeeding or in children.** Therefore, it is not known whether they're safe for these groups of people.

Communication Is Crucial

In Chapter 2, we talked about the importance of telling all your health care providers—and any complementary health practitioners that you see—about everything you're doing to manage your pain, including both conventional and complementary approaches. It's especially important to tell them about any dietary supplements or other natural products you take. These products may have special issues—such as contamination or drug interactions—that don't apply to other complementary approaches.

Research on Natural Products for Pain

Researchers are studying a wide variety of substances derived from plants, microorganisms, and animals for their possible value in managing pain.

— Products containing substances from cannabis (marijuana), which typically include both tetrahydrocannabinol (THC) and cannabidiol (CBD), have been tested for their effects on chronic pain in short-term studies. Oral products with high THC/CBD ratios and sublingual (under-the-tongue) products with roughly equal amounts of THC and CBD may reduce chronic pain in the short term but may also have adverse side effects including dizziness and sleepiness. Not much is known about other formulations or the effects of long-term use. Research funded by NCCIH is looking at the potential pain-relieving properties of substances from cannabis.

— The leaves of the kratom plant have traditionally been used in Southeast Asia for a variety of purposes, including treating symptoms such as pain. Today, some people in Western countries use kratom to try to treat pain or manage opioid withdrawal symptoms. Research on kratom is in its early stages, and much more needs to be learned about its effects in the body, its safety, and whether it may have therapeutic uses. Kratom is currently legal and accessible online and in stores in many areas of the United States. The U.S. Drug Enforcement Administration has listed kratom as a "drug of concern," but kratom and kratom compounds are not listed in the U.S. schedule of controlled substances. The U.S. Food and Drug Administration (FDA) has not approved kratom as safe and effective for any medical purpose.

— Another plant product being studied for its possible benefits for pain is conolidine, derived from an Asian plant called crepe jasmine. It seems to have pain-relieving properties, but how it might work is not understood.

— Products derived from microorganisms that are being investigated in pain research include botulinum toxin, anthrax toxins, and probiotics.

— Products from animals that are being studied for their possible value in treating pain include snail venom and derivatives of fish oil.

To Find Out More

— To learn more about using dietary supplements safely and appropriately, read NCCIH's fact sheet, *Using Dietary Supplements Wisely* (https://www.nccih.nih.gov/health/using-dietary-supplements-wisely), and visit the website of NIH's Office of Dietary Supplements (http://ods.od.nih.gov).

— For information on dietary supplement regulation, visit the FDA's webpage, Supplement Your Knowledge (https://www.fda.gov/food/information-consumers-using-dietary-supplements/supplement-your-knowledge).

Chapter 12 Other Complementary Health Approaches

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In addition to the complementary health approaches discussed in previous chapters, several other approaches have been studied for pain, at least to a limited extent.

Biofeedback: The use of electronic devices to help people learn to consciously control body functions such as breathing or heart rate.

— **Balneotherapy.** The terms "balneotherapy" and "spa therapy" refer to bathing in mineral water for health purposes and related techniques such as mud packs. Balneotherapy may be helpful for some symptoms of fibromyalgia and for improving quality of life in people with rheumatoid arthritis.

— **Biofeedback.** Biofeedback techniques measure body functions and give you information about them to help teach you to control them. For example, you may learn how to change muscle tension or brain waves by relaxing your muscles or holding pleasant images in your mind. Studies of a type of biofeedback involving measurements of muscle tension have found this technique helpful for tension headaches. Biofeedback is one of several nondrug approaches suggested for initial treatment of chronic low-back pain in treatment guidelines from the American College of Physicians. It may moderately improve low-back pain. Studies of brain wave biofeedback in chronic pain suggest it may reduce pain intensity in the short term. Biofeedback has not been shown to relieve neck pain or shoulder pain. Biofeedback may be helpful for some types of pelvic pain but not others.

Homeopathy: An alternative medical system developed in Germany more than 200 years ago. Homeopathic remedies are derived from substances that come from plants, minerals, or animals, and most remedies are highly diluted.

Hypnosis: A state in which a person's attention is concentrated and focused. In this hypnotic state, people have a heightened responsiveness to verbal messages (suggestions).

— **Homeopathy.** Homeopathy was developed in Europe more than 200 years ago. It is based on two unconventional ideas: the notion that a disease can be cured by a substance that produces similar symptoms in healthy people, and the notion that the lower the dose of the medicine, the greater its effectiveness. A number of the key concepts underlying the theory of homeopathy are not consistent with fundamental scientific concepts as we understand them. For example, homeopathic preparations can be so dilute that a substance considered to be the "active ingredient" becomes unmeasurable, which creates major challenges to the rigorous investigation of such products. However, recent research has begun to examine physical attributes of these preparations to determine if it will be possible to characterize them in the future.

— **Hypnosis.** Although the amount of research is relatively small, there is some evidence that hypnosis can reduce dental pain, reduce the need for pain medication during medical procedures, and (if patients participate in at least eight hypnosis sessions) reduce chronic pain. Studies of experimentally induced pain in healthy people show that hypnosis can reduce pain in individuals who score medium or high on hypnotic suggestibility, but its effects are minimal in those with low suggestibility.

— **Magnets.** Both static magnets and electromagnets have been studied as treatments for pain.

  – **Static magnets** have magnetic fields that don't change. They may be put into products such as wristbands, shoe insoles, bracelets, and bed pads. There's not much research on static magnets for pain, and there's no conclusive evidence that they're helpful for any type of pain.

  – **Electromagnets** become magnetic when an electrical current charges the metal. There's some evidence that electromagnetic therapy may be helpful for musculoskeletal pain, such as pain from knee osteoarthritis.

— **Reiki.** Reiki is a complementary health approach in which practitioners place their hands lightly on or just above the person, with the goal of facilitating the person's own healing response. There isn't enough high-quality research to evaluate whether Reiki is helpful for relieving pain.

To Find Out More

Visit these pages on the NCCIH website:

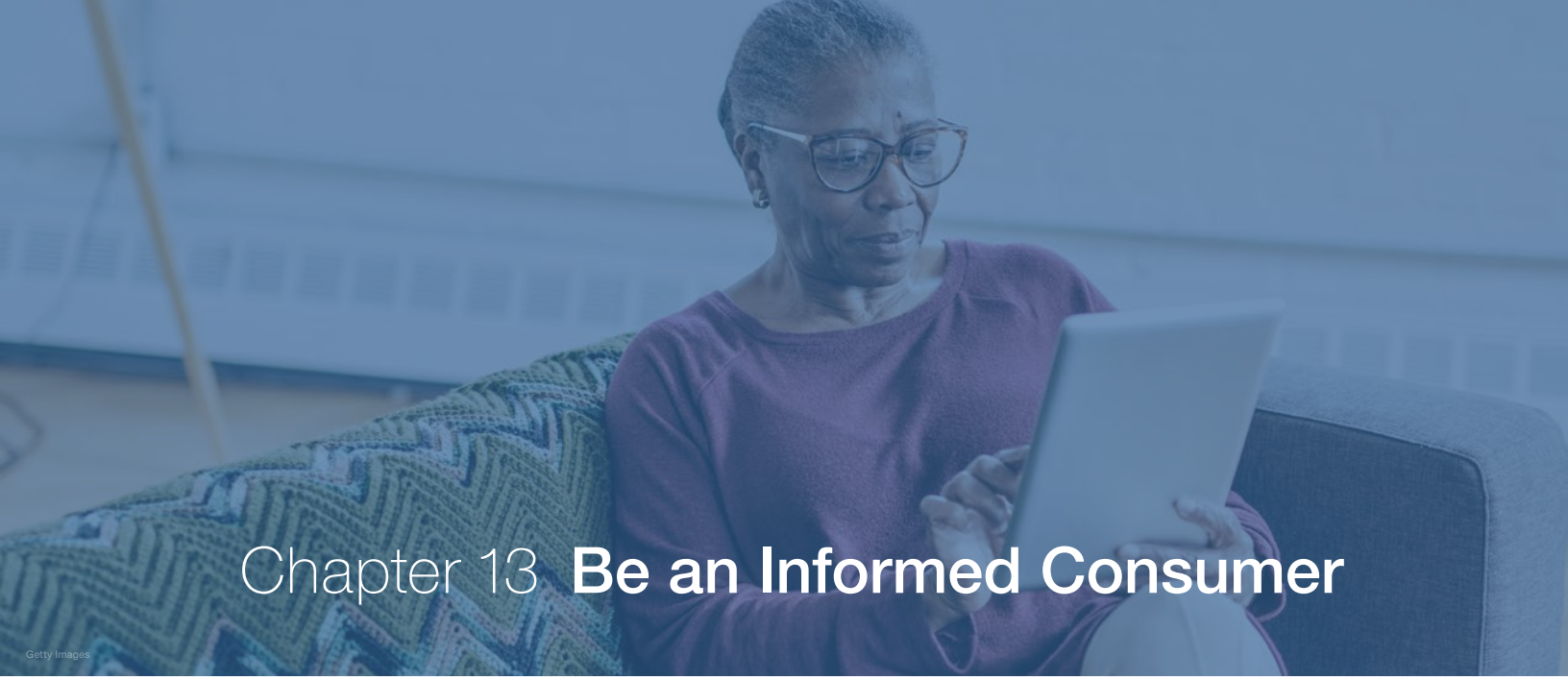
— Pain (https://nccih.nih.gov/health/pain)

— Hypnosis (https://www.nccih.nih.gov/health/hypnosis)

— Homeopathy: What You Need To Know (https://nccih.nih.gov/health/homeopathy)

— Magnets for Pain: What You Need To Know (https://www.nccih.nih.gov/health/magnets-for-pain-what-you-need-to-know)

— Reiki (https://www.nccih.nih.gov/health/reiki)



Chapter 13 Be an Informed Consumer

Decisions about your health care are important—including decisions about whether to use complementary approaches to help manage pain. Take charge of your health by being an informed consumer. The information in this chapter can help.

Topics discussed in this chapter include:

— Evaluating complementary health information on the internet

— Finding reliable sources of health information

— Selecting a complementary health practitioner

Complementary Health Information on the Internet

Many people look for health information on the internet. The number of websites, social media sites, and mobile apps offering information about complementary and integrative health keeps growing. Some online sources are useful, but others are inaccurate or misleading.

If you're visiting an online health site for the first time or downloading a new app, these five questions may help you decide whether the resource is trustworthy:

— **Who** runs or created the site or app? Can you trust them?

— **What** is the site or app promising or offering? Do its claims seem too good to be true?

— **When** was the information written or reviewed? Is it up to date?

— **Where** does the information come from? Is it based on scientific research?

— **Why** does the site or app exist? Is it selling something?

Rather than searching the internet, it's often easier to find reliable health information online by visiting U.S. Government health websites, where all the information has been checked to make sure it's accurate. Other sources that may provide useful information include academic websites (with .edu in the URL) and the Mayo Clinic website (https://www.mayoclinic.org/diseases-conditions).

The following online Federal Government collections of high-quality, up-to-date resources may be particularly helpful:

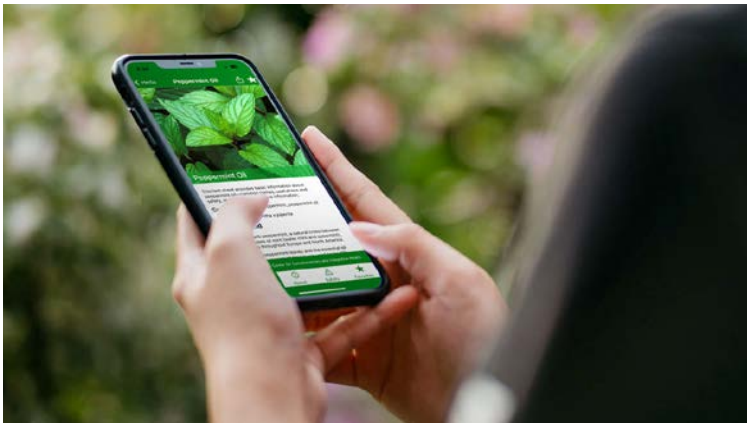
- For Complementary Health Approaches
  - NCCIH's website (https://nccih.nih.gov)
  - NIH's Office of Dietary Supplements website (https://ods.od.nih.gov)
- For All Health Topics
  - MedlinePlus (https://medlineplus.gov), a collection of resources maintained by NIH's National Library of Medicine
- To Help You Identify Reliable Information Sources
  - Know the Science (https://www.nccih.nih.gov/health/know-science), NCCIH's collection of tools to help people better understand complex scientific topics related to health research

Mobile Health Apps

Thousands of mobile apps provide health information you can read on your smartphone or tablet.

Keep these points in mind when using a mobile health app:

- The content of most apps isn't written or reviewed by medical experts and may be inaccurate and unsafe. In addition, the information you enter when using an app may not be secure.
- It's not always easy to know what personal information an app will access or how it will store your data.
- Before you download an app, find out if the app store says who created it. Don't trust the app if contact or website information for the creator isn't available.



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If you're interested in herbs, you may want to consider downloading HerbList™ (https://www.nccih.nih.gov/health/herblist-app), NCCIH's app for research-based information about the safety and effectiveness of herbal products.

Where To Find Reliable Information

The internet, when used carefully, can be a good source of information about complementary health approaches, but other resources are also available.

Your health care providers and your pharmacist are good resources for learning about complementary health approaches. You can ask them about safety, effectiveness, and possible interactions with medicines, and they can help you understand scientific reports.

Another good information source is the NCCIH Clearinghouse. The information specialists at the Clearinghouse can respond to inquiries in English and Spanish, send you publications on complementary health approaches, and search Federal databases of scientific and medical literature for you. However, they cannot provide medical advice, treatment recommendations, or referrals to practitioners.

You can reach the Clearinghouse in these ways:

— **By phone.** Call 1-888-644-6226. Deaf or hard-of-hearing callers can use the telecommunications relay service (TRS): 7-1-1.

— **By email.** Send your questions to info@nccih.nih.gov or use this email form: https://www.nccih.nih.gov/tools/emailnccih.

— **By postal mail.** Write to NCCIH Clearinghouse, P.O. Box 7923, Gaithersburg, MD 20898.

Selecting a Complementary Health Practitioner

Some of the practices described in this eBook, such as acupuncture, massage therapy, and spinal manipulation, involve working with a practitioner.

When you're looking for a complementary health practitioner to help treat a health problem, it's important to be as careful and thorough in your search as you are when looking for conventional medical care. Here are some tips:

— **If you need names of practitioners in your area, first check with your doctor or other health care provider.** A nearby hospital, professional organizations, or your health insurance provider may also be helpful. NCCIH cannot refer you to practitioners.

— **Find out as much as you can about any potential practitioner, including education, training, licensing, and certifications.** The credentials required for complementary health practitioners vary tremendously from state to state and from discipline to discipline.

— **Find out whether the practitioner is willing to work together with your conventional health care providers.** For safe, coordinated care, it's important for all the professionals involved in your health to communicate and cooperate.

— **Explain all your health conditions to the practitioner, and find out about the practitioner's training and experience in working with people who have your conditions.** Choose a practitioner who understands how to work with people with your specific needs. And remember that health conditions can affect the safety of complementary approaches.

— **Don't assume that your health insurance will cover the practitioner's services.** Coverage varies for different approaches, and it may be partial rather than complete. It's wise to contact your insurance provider and ask what coverage you have.

To Find Out More

— The NCCIH website has guidance on being an informed consumer (https://www.nccih.nih.gov/health/be-an-informed-consumer).

— You can learn more about how to evaluate health information on the internet from resources provided by NCCIH (https://www.nccih.nih.gov/health/finding-and-evaluating-online-resources) and MedlinePlus (https://medlineplus.gov/evaluatinghealthinformation.html).

— Read about credentials and licensing (https://www.nccih.nih.gov/health/credentialing-licensing-and-education) of complementary health practitioners and paying for complementary health approaches on the NCCIH website (https://www.nccih.nih.gov/health/paying-for-complementary-and-integrative-health-approaches).

Chapter 14 Research on Complementary Approaches for Pain

Research on pain is a high priority for NCCIH and the larger agency we're part of, the National Institutes of Health (NIH). Here are some highlights of current research:

- NIH has launched an aggressive effort to speed scientific solutions to the opioid crisis called the Helping to End Addiction Long-term® Initiative, or NIH HEAL Initiative® (https://heal.nih.gov/). One part of HEAL is research to prevent addiction by improving pain management. This includes research on nondrug and integrated therapies for pain.
- With NCCIH as the lead agency, NIH is collaborating with the U.S. Department of Defense and U.S. Department of Veterans Affairs on large-scale research on nondrug approaches for pain management in the military (https://painmanagementcollaboratory.org) and veterans' health care delivery systems.
- NCCIH does research at the NIH laboratories (https://www.nccih.nih.gov/research/intramural) on the role of the brain in perceiving, modifying, and managing pain. Research projects include investigating the role of the brain in pain processing and control, and how factors such as emotion, attention, environment, and genetics affect pain perception.

To Find Out More

- Visit the NIH Pain Consortium's website (https://www.painconsortium.nih.gov) to learn more about pain-related research activities throughout NIH.
- For the latest news on the NIH HEAL Initiative, visit the NIH HEAL Initiative website (https://heal.nih.gov).
- Go to the NCCIH Pain page (https://nccih.nih.gov/health/pain) for information about NCCIH's pain research projects.

Chapter 15 Frequently Asked Questions

Q: How common is pain, and who is most likely to have it?

A: Many people have pain. According to a national survey, about 11 percent of adults have pain every day and more than 17 percent of adults have severe levels of pain. Chronic pain is more common among women than men, and it becomes more common as people grow older.

To find out more, visit NCCIH's webpage on Pain (https://nccih.nih.gov/health/pain).

Q: What are complementary health approaches?

A: Complementary health approaches are health care approaches with an origin or history of use outside of mainstream Western, or conventional, medicine. They include psychological and physical approaches (such as acupuncture, yoga, and massage therapy) and nutritional approaches (such as herbs, vitamins, and probiotics).

To find out more, read NCCIH's fact sheet *Complementary, Alternative, or Integrative Health: What's In a Name?* (https://www.nccih.nih.gov/health/complementary-alternative-or-integrative-health-whats-in-a-name).

Q: Are complementary approaches safe?

A: There is no simple answer to this question. Safety depends on the specific approach, and each complementary product or practice should be considered on its own.

Safety also varies for different people. Complementary approaches that are safe for healthy people may not be safe for people with some medical conditions, either because of the condition itself or because of the treatment the person is receiving for it.

Q: Can you give some tips on how to use complementary approaches safely?

A: Here are three important things to remember:

1. Always tell all of your doctors or other health care providers about all complementary approaches you're using.
2. Never use a complementary approach as a reason to delay seeing your health care provider about a health problem.
3. If you're thinking about stopping (or not starting) conventional care for a health problem, discuss it with your health care provider. In some instances, going without conventional care can lead to serious problems.

To learn more about the safety of complementary health approaches, visit NCCIH's webpage on Safe Use of Complementary Health Products and Practices (https://www.nccih.nih.gov/health/safety).

Q: Does acupuncture help to relieve pain?

A: Research has shown that acupuncture may be helpful for several pain conditions, including back and neck pain, knee pain associated with osteoarthritis, and pain after surgery.

To find out more, see NCCIH's fact sheet, *Acupuncture: What You Need To Know* (https://www.nccih.nih.gov/health/acupuncture-what-you-need-to-know).

Q: Does massage therapy help to relieve pain?

A: Research suggests that massage therapy may help relieve several kinds of pain, but the effects may last for only a short time.

To find out more, read NCCIH's fact sheet, *Massage Therapy: What You Need To Know* (https://www.nccih.nih.gov/health/massage-therapy-what-you-need-to-know).

Q: Do meditation and mindfulness help to relieve pain?

A: Research on the effects of mindfulness or meditation on acute and chronic pain has had mixed results. In studies on acute pain, mindfulness-based therapies didn't seem to reduce pain severity, but they may have improved people's tolerance for pain. In studies on chronic pain, mindfulness-based interventions and cognitive behavioral therapy (the usual psychological intervention for chronic pain) have both been found to be helpful in decreasing pain intensity.

To find out more, read NCCIH's fact sheet, *Meditation and Mindfulness: What You Need To Know* (https://www.nccih.nih.gov/health/meditation-and-mindfulness-what-you-need-to-know).

Q: Do music-based interventions help to relieve pain?

A: Research evidence suggests that music-based interventions may help reduce both pain intensity and emotional distress from pain. They may lead to decreased use of pain-relieving medications.

To find out more, read NCCIH's fact sheet, *Music and Health: What You Need To Know* (https://www.nccih.nih.gov/health/music-and-health-what-you-need-to-know).

Q: Do relaxation techniques help to relieve pain?

A: Adding relaxation techniques to treatment plans may be helpful for some painful conditions, such as pain after surgery, headache, low-back pain, and arthritis.

To find out more, read NCCIH's fact sheet, *Relaxation Techniques: What You Need To Know* (https://www.nccih.nih.gov/health/relaxation-techniques-what-you-need-to-know).

Q: Does spinal manipulation help to relieve pain?

A: Spinal manipulation may be helpful for low-back pain, neck pain, some types of headaches, and possibly sciatica.

To find out more, see NCCIH's fact sheet, *Spinal Manipulation: What You Need To Know* (https://www.nccih.nih.gov/health/spinal-manipulation-what-you-need-to-know).

Q: Do tai chi and qigong help to relieve pain?

A: Tai chi may help to relieve low-back pain and pain associated with osteoarthritis. A small amount of research suggests that tai chi may also be helpful for pain in people with fibromyalgia. There has been only a small amount of research on qigong for pain, and the few studies that have been done have had conflicting results.

To find out more, read NCCIH's fact sheets, *Tai Chi: What You Need To Know* (https://www.nccih.nih.gov/health/tai-chi-what-you-need-to-know) and *Qigong: What You Need To Know* (https://www.nccih.nih.gov/health/qigong-what-you-need-to-know).

Q: Does yoga help to relieve pain?

A: Yoga may help to relieve low-back pain and neck pain. A small amount of research suggests that yoga may also be helpful for tension headaches and pain associated with osteoarthritis of the knee.

To find out more, read NCCIH's fact sheet, *Yoga: What You Need To Know* (https://www.nccih.nih.gov/health/yoga-what-you-need-to-know).

Q: Can any dietary supplements or other natural products help to relieve pain?

A: Dietary supplements and other natural products have been studied for several pain conditions.

- **Low-back pain.** For low-back pain, the results are most promising for cayenne (capsicum) cream or plasters, used topically. There's also a small amount of evidence that Brazilian arnica and comfrey root extract, used topically, and devil's claw and white willow bark, taken orally (by mouth), may be helpful.
- **Rheumatoid arthritis.** Some omega-3 fatty acids, like those found in fish oil, may be helpful for rheumatoid arthritis.
- **Migraines.** There's some evidence that coenzyme Q10, feverfew, magnesium, and the B vitamin riboflavin might be helpful for reducing the frequency of migraines. However, for all these supplements, the amount of evidence is small.
- **Irritable bowel syndrome.** Probiotics may be helpful for symptoms of irritable bowel syndrome, but different strains of probiotics may have different effects. Studies on peppermint oil have suggested that it may be helpful for overall symptoms and abdominal pain in people with irritable bowel syndrome.

Q: Are dietary supplements safe because they are natural?

A: Not necessarily. Natural doesn't always mean safe. To find out more about how to use dietary supplements safely, visit NCCIH's Dietary and Herbal Supplements page (https://www.nccih.nih.gov/health/dietary-and-herbal-supplements) and the website of NIH's Office of Dietary Supplements (https://ods.od.nih.gov).

Q: Can you trust information on the internet about complementary health approaches?

A: Not necessarily. Some of the health information on the internet is inaccurate or misleading.

Q: Can you recommend some websites that provide good information about complementary health approaches?

A: Yes. Visit NCCIH's website (https://nccih.nih.gov) and the NIH Office of Dietary Supplements website (https://ods.od.nih.gov). You can also find information about complementary approaches and many other health topics at MedlinePlus (https://medlineplus.gov).

Q: Are mobile health apps trustworthy?

A: They may not be. The content of most apps isn't written or reviewed by medical experts and may be inaccurate or unsafe.

Q: Besides the internet, what are some good sources of information on complementary health approaches?

A: Your health care provider and your pharmacist are good resources.

Another good information source is the NCCIH Clearinghouse. The information specialists at the Clearinghouse can respond to inquiries in English and Spanish, send you publications on complementary health approaches, and search Federal databases of scientific and medical literature for you. However, they cannot provide medical advice, treatment recommendations, or referrals to practitioners.

You can reach the Clearinghouse in these ways:

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- **By email.** Send your questions to info@nccih.nih.gov or use this email form: https://www.nccih.nih.gov/tools/emailnccih.
- **By postal mail.** Write to NCCIH Clearinghouse, P.O. Box 7923, Gaithersburg, MD 20898.

Q: Will my health insurance cover the complementary health approach I want to use to help manage my pain?

A: Not necessarily. Check with your health insurance provider.

Q: How can I get names of complementary health practitioners in my area?

A: Check with your doctor or other health care provider. A nearby hospital, professional organizations, or your health insurance provider may also be helpful.

Selected References

Chapter 1: About Pain and Complementary Health Approaches

Dahlhamer J, Lucas J, Zelaya C, Nahin R, et al. Prevalence of chronic pain and high-impact chronic pain among adults—United States, 2016. *MMWR.* 2018;67(36):1001-1006.
https://pubmed.ncbi.nlm.nih.gov/30212442

Horrigan B, Lewis S, Abrams DI, et al. Integrative medicine in America—how integrative medicine is being practiced in clinical centers across the United States. *Global Advances in Health and Medicine.* 2012;1(3):18-94.
https://ncbi.nlm.nih.gov/pmc/articles/PMC3833660/pdf/gahmj.2012.1.3.006.pdf

Johannes CB, Le TK, Zhou Z, et al. The prevalence of chronic pain in United States adults: results of an internet-based survey. *Journal of Pain.* 2010;11(11):1230-1239.
https://pubmed.ncbi.nlm.nih.gov/20797916

Chapter 2: Safety of Complementary Health Approaches

Chan MWC, Wu XY, Wu JCY, et al. Safety of acupuncture: overview of systematic reviews. *Scientific Reports.* 2017;7(1):3369.
https://pubmed.ncbi.nlm.nih.gov/28611366

Farias M, Maraldi E, Wallenkampf KC, et al. Adverse events in meditation practices and meditation-based therapies: a systematic review. *Acta Psychiatrica Scandinavica.* 2020;142(5):374-393.
https://pubmed.ncbi.nlm.nih.gov/32820538

Rider CV, Walker NJ, Waidyanatha S. Getting to the root of the matter: challenges and recommendations for assessing the safety of botanical dietary supplements. *Clinical Pharmacology and Therapeutics.* 2018;104(3):429-431.
https://pubmed.ncbi.nlm.nih.gov/29745419

Chapter 3: Acupuncture

Hershman DL, Unger JM, Greenlee H, et al. Effect of acupuncture vs sham acupuncture or waitlist control on joint pain related to aromatase inhibitors among women with early-stage breast cancer: a randomized clinical trial. *JAMA.* 2018;320(2):167-176.
https://pubmed.ncbi.nlm.nih.gov/29998338

Nahin RL, Rhee A, Stussman B. Use of complementary health approaches overall and for pain management by US adults. *JAMA.* 2024;331(7):613-615.
https://pubmed.ncbi.nlm.nih.gov/38270938

Vickers AJ, Vertosick EA, Lewith G, et al. Acupuncture for chronic pain: update of an individual patient data meta-analysis. *Journal of Pain.* 2018;19(5):455-474.
https://pubmed.ncbi.nlm.nih.gov/29198932

Wang R, Li X, Zhou S, et al. Manual acupuncture for myofascial pain syndrome: a systematic review and meta-analysis. *Acupuncture in Medicine.* 2017;35(4):241-250.
https://pubmed.ncbi.nlm.nih.gov/28115321

Chapter 4: Massage Therapy

Bervoets DC, Luijsterburg PAJ, Alessie JJN, et al. Massage therapy has short-term benefits for people with common musculoskeletal disorders compared to no treatment: a systematic review. *Journal of Physiotherapy.* 2015;61(3):106-116.
https://pubmed.ncbi.nlm.nih.gov/26093806

Kong LJ, Zhan HS, Cheng YW, et al. Massage therapy for neck and shoulder pain: a systematic review and meta-analysis. *Evidence-Based Complementary and Alternative Medicine.* 2013;2013;613279.
https://pubmed.ncbi.nlm.nih.gov/23533504

Nahin RL, Rhee A, Stussman B. Use of complementary health approaches overall and for pain management by US adults. *JAMA.* 2024;331(7):613-615.
https://pubmed.ncbi.nlm.nih.gov/38270938

Shin E-S, Seo K-H, Lee S-H, et al. Massage with or without aromatherapy for symptom relief in people with cancer. *Cochrane Database of Systematic Reviews.* 2016;(6):CD009873.
https://pubmed.ncbi.nlm.nih.gov/27258432

Chapter 5: Meditation and Mindfulness

Anheyer D, Leach MJ, Klose P, et al. Mindfulness-based stress reduction for treating chronic headache: a systematic review and meta-analysis. *Cephalalgia.* 2019;39(4):544-555.
https://pubmed.ncbi.nlm.nih.gov/29863407

Khoo E-L, Small R, Cheng W, et al. Comparative evaluation of group-based mindfulness-based stress reduction and cognitive behavioural therapy for the treatment and management of chronic pain: a systematic review and network meta-analysis. *Evidence-Based Mental Health.* 2019;22(1)26-35.
https://pubmed.ncbi.nlm.nih.gov/30705039

Nahin RL, Rhee A, Stussman B. Use of complementary health approaches overall and for pain management by US adults. *JAMA.* 2024;331(7):613-615.
https://pubmed.ncbi.nlm.nih.gov/38270938

Shires A, Sharpe L, Davies JN, et al. The efficacy of mindfulness-based interventions in acute pain: a systematic review and meta-analysis. *Pain.* 2020;161(8):1698-1707.
https://pubmed.ncbi.nlm.nih.gov/32701830

Chapter 6: Music

Cheever T, Taylor A, Finkelstein R, et al. NIH/Kennedy Center workshop on music and the brain: finding harmony. *Neuron.* 2018;97(6):1214-1218.
https://pubmed.ncbi.nlm.nih.gov/29566791

Garza-Villareal EA, Pando V, Vuust P, et al. Music-induced analgesia in chronic pain conditions: a systematic review and meta-analysis. *Pain Physician.* 2017;20:597-610.
https://pubmed.ncbi.nlm.nih.gov/29149141

Lee JH. The effects of music on pain: a meta-analysis. *Journal of Music Therapy.* 2016;53(4):430-477.
https://pubmed.ncbi.nlm.nih.gov/27760797

Chapter 7: Relaxation Techniques

Giacobbi PR Jr, Stabler ME, Stewart J, et al. Guided imagery for arthritis and other rheumatic diseases: a systematic review of randomized controlled trials. *Pain Management Nursing.* 2015;16(5):792-803.
https://pubmed.ncbi.nlm.nih.gov/26174438

Nahin RL, Rhee A, Stussman B. Use of complementary health approaches overall and for pain management by US adults. *JAMA.* 2024;331(7):613-615.
https://pubmed.ncbi.nlm.nih.gov/38270938

Powell R, Scott NW, Manyande A, et al. Psychological preparation and postoperative outcomes for adults undergoing surgery under general anaesthesia. *Cochrane Database of Systematic Reviews.* 2016;(5):CD008646.
https://pubmed.ncbi.nlm.nih.gov/27228096

Sullivan A, Cousins S, Ridsdale L. Psychological interventions for migraine: a systematic review. *Journal of Neurology.* 2016;263(12):2369-2377.
https://pubmed.ncbi.nlm.nih.gov/27159991

Chapter 8: Spinal Manipulation

Coulter ID, Crawford C, Vernon H, et al. Manipulation and mobilization for treating chronic nonspecific neck pain: a systematic review and meta-analysis for an appropriateness panel. *Pain Physician.* 2019;22(2):E55-E70.
https://pubmed.ncbi.nlm.nih.gov/30921975

Nahin RL, Rhee A, Stussman B. Use of complementary health approaches overall and for pain management by US adults. *JAMA.* 2024;331(7):613-615.
https://pubmed.ncbi.nlm.nih.gov/38270938

Paige NM, Miake-Lye IM, Booth MS, et al. Association of spinal manipulative therapy with clinical benefit and harm for acute low back pain. Systematic review and meta-analysis. *JAMA.* 2017;317(14):1451-1460.
https://pubmed.ncbi.nlm.nih.gov/28399251

Rubinstein SM, de Zoete A, van Middelkoop M, et al. Benefits and harms of spinal manipulative therapy for the treatment of chronic low back pain: systematic review and meta-analysis of randomised controlled trials. *BMJ.* 2019;364:I689.
https://pubmed.ncbi.nlm.nih.gov/30867144

Chapter 9: Tai Chi and Qigong

Cheng C-A, Chiu Y-W, Wu D, et al. Effectiveness of tai chi on fibromyalgia patients: a meta-analysis of randomized controlled trials. *Complementary Therapies in Medicine.* 2019;46:1-8.
https://pubmed.ncbi.nlm.nih.gov/31519264

Hu L, Wang Y, Liu X, et al. Tai chi exercise can ameliorate physical and mental health of patients with knee osteoarthritis: systematic review and meta-analysis. *Clinical Rehabilitation.* 2021;35(1):64-79.
https://pubmed.ncbi.nlm.nih.gov/32954819

Qin J, Zhang Y, Wu L, et al. Effect of tai chi alone or as additional therapy on low back pain: systematic review and meta-analysis of randomized controlled trials. *Medicine (Baltimore).* 2019;98(37):e17099.
https://pubmed.ncbi.nlm.nih.gov/31517838

Chapter 10: Yoga

Anheyer D, Klose P, Lauche R, et al. Yoga for treating headaches: a systematic review and meta-analysis. *Journal of General Internal Medicine.* 2020;35(3):846-854.
https://pubmed.ncbi.nlm.nih.gov/31667736

Lauche R, Hunter DJ, Adams J, et al. Yoga for osteoarthritis: a systematic review and meta-analysis. *Current Rheumatology Reports.* 2019;21(9):47.
https://pubmed.ncbi.nlm.nih.gov/31338685

Nahin RL, Rhee A, Stussman B. Use of complementary health approaches overall and for pain management by US adults. *JAMA.* 2024;331(7):613-615.
https://pubmed.ncbi.nlm.nih.gov/38270938

Swain TA, McGwin G. Yoga-related injuries in the United States from 2001 to 2014. *Orthopaedic Journal of Sports Medicine.* 2016;4(11):2325967116671703.
https://pubmed.ncbi.nlm.nih.gov/27896293

Chapter 11: Dietary Supplements and Other Nutritional Approaches

Cameron M, Gagnier JJ, Chrubasik S. Herbal therapy for treating rheumatoid arthritis. *Cochrane Database of Systematic Reviews.* 2011;(2):CD002948.
https://pubmed.ncbi.nlm.nih.gov/21328257

Malone M, Tsai G. The evidence for herbal and botanical remedies, part 1. *Journal of Family Practice.* 2018;67(1):10-16.
https://pubmed.ncbi.nlm.nih.gov/29309469

Oltean H, Robbins C, van Tulder MW, et al. Herbal medicine for low-back pain. *Cochrane Database of Systematic Reviews.* 2014;(12):CD004504.
https://pubmed.ncbi.nlm.nih.gov/25536022

Chapter 12: Other Complementary Health Approaches

Merz AE, Campus G, Abrahamsen R, et al. Hypnosis on acute dental and maxillofacial pain relief: a systematic review and meta-analysis. *Journal of Dentistry*. 2022;123:104184.
https://pubmed.ncbi.nlm.nih.gov/35691451

Paolucci T, Pezzi L, Centra AM, et al. Electromagnetic field therapy: a rehabilitative perspective in the management of musculoskeletal pain—a systematic review. *Journal of Pain Research.* 2020;13:1385-1400.
https://pubmed.ncbi.nlm.nih.gov/32606905

Thrane S, Cohen SM. Effect of Reiki therapy on pain and anxiety in adults: an in-depth literature review of randomized trials with effect size calculations. *Pain Management Nursing.* 2014;15(4):897-908.
https://pubmed.ncbi.nlm.nih.gov/24582620

Chapter 13: Be an Informed Consumer

Martínez-Pérez B, de la Torre-Díez I, López-Coronado M. Privacy and security in mobile health apps: a review and recommendations. *Journal of Medical Systems.* 2015;39(1):181.
https://pubmed.ncbi.nlm.nih.gov/25486895

Nahin RL, Barnes PM, Stussman BJ. Insurance coverage for complementary health approaches among adult users: United States, 2002 and 2012. *NCHS Data Brief.* 2016;235:1-8. https://pubmed.ncbi.nlm.nih.gov/26828643

Subhi Y, Bube SH, Rolskov Bojsen S, et al. Expert involvement and adherence to medical evidence in medical mobile phone apps: a systematic review. *JMIR Mhealth and Uhealth.* 2015;3(3):e79. https://pubmed.ncbi.nlm.nih.gov/26215371

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Additional Resources

Chapter 1: About Pain and Complementary Health Approaches

Complementary, Alternative, or Integrative Health: What's In a Name? (NCCIH)
https://www.nccih.nih.gov/health/complementary-alternative-or-integrative-health-whats-in-a-name

Chronic Pain (National Institute of Neurological Disorders and Stroke)
https://www.ninds.nih.gov/health-information/disorders/chronic-pain

Pain (NCCIH)
https://www.nccih.nih.gov/health/pain

Chapter 2: Safety of Complementary Health Approaches

Safe Use of Complementary Health Products and Practices (NCCIH)
https://www.nccih.nih.gov/health/safety

Chapter 3: Acupuncture

Acupuncture: What You Need To Know (NCCIH)
https://www.nccih.nih.gov/health/acupuncture-what-you-need-to-know

Chapter 4: Massage Therapy

Massage Therapy: What You Need To Know (NCCIH)
https://www.nccih.nih.gov/health/massage-therapy-what-you-need-to-know

Chapter 5: Meditation and Mindfulness

Meditation and Mindfulness: What You Need To Know (NCCIH)
https://www.nccih.nih.gov/health/meditation-and-mindfulness-what-you-need-to-know

Chapter 6: Music

Music and Health: What You Need To Know (NCCIH)
https://www.nccih.nih.gov/health/music-and-health-what-you-need-to-know

Chapter 7: Relaxation Techniques

Relaxation Techniques: What You Need To Know (NCCIH)
https://www.nccih.nih.gov/health/relaxation-techniques-what-you-need-to-know

Chapter 8: Spinal Manipulation

Spinal Manipulation: What You Need To Know (NCCIH)
https://www.nccih.nih.gov/health/spinal-manipulation-what-you-need-to-know

Chapter 9: Tai Chi and Qigong

Qigong: What You Need To Know (NCCIH)
https://www.nccih.nih.gov/health/qigong-what-you-need-to-know

Tai Chi: What You Need To Know (NCCIH)
https://www.nccih.nih.gov/health/tai-chi-what-you-need-to-know

Chapter 10: Yoga

Yoga: What You Need To Know (NCCIH)
https://www.nccih.nih.gov/health/yoga-what-you-need-to-know

Chapter 11: Dietary Supplements and Other Nutritional Approaches

NIH Office of Dietary Supplements
https://ods.od.nih.gov/

Supplement Your Knowledge (U.S. Food and Drug Administration)
https://www.fda.gov/food/information-consumers-using-dietary-supplements/supplement-your-knowledge

Using Dietary Supplements Wisely (NCCIH)
https://www.nccih.nih.gov/health/using-dietary-supplements-wisely

Chapter 12: Other Complementary Health Approaches

Homeopathy: What You Need To Know (NCCIH)
https://www.nccih.nih.gov/health/homeopathy

Hypnosis (NCCIH)
https://www.nccih.nih.gov/health/hypnosis

Magnets for Pain: What You Need To Know (NCCIH)
https://www.nccih.nih.gov/health/magnets-for-pain-what-you-need-to-know

Reiki (NCCIH)
https://www.nccih.nih.gov/health/reiki

Chapter 13: Be an Informed Consumer

Be an Informed Consumer (NCCIH)
https://www.nccih.nih.gov/health/be-an-informed-consumer

Finding and Evaluating Online Resources (NCCIH)
https://www.nccih.nih.gov/health/finding-and-evaluating-online-resources

Chapter 14: Research on Complementary Approaches for Pain

NIH Pain Consortium
https://www.painconsortium.nih.gov

The Helping to End Addiction Long-term® Initiative
https://heal.nih.gov

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